

# Charting Nursing's Future

REPORTS THAT CAN INFORM POLICY AND PRACTICE

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*"Nurses play an essential role in our nation's ability to prepare for, respond to, and recover from disasters. In hospitals, nurses are among the most flexible of staff, possessing clinical knowledge, communication, and management skills that can fill a variety of roles during emergencies. As community members, their education and preparedness can serve as an example to all citizens."*

**–RADM Sylvia Trent-Adams, PhD, RN,**  
Deputy Surgeon General, Chief Nurse  
Officer, United States Public Health  
Service Commissioned Corps

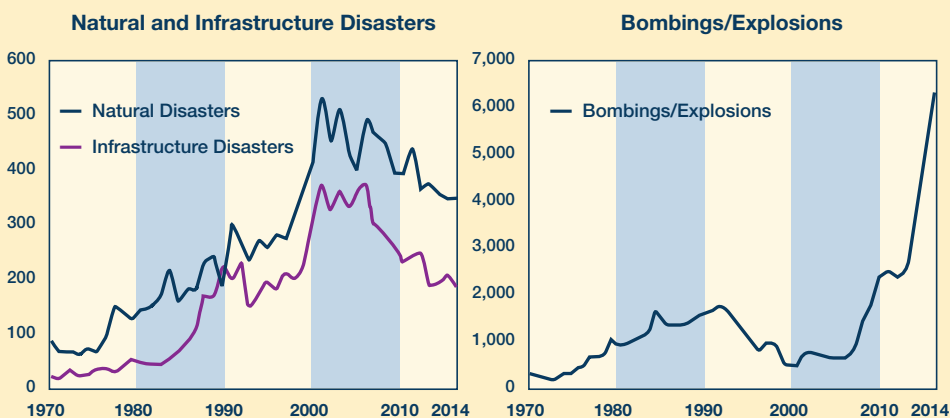
## When Disaster Strikes: Nurse Leadership, Nursing Care, and Teamwork Save Lives

When disaster strikes, nurses form the backbone of our nation's health care response. Whether working in hospitals or shelters or walking door-to-door, nurses sustain spirits and save lives. They triage patients, deliver first aid, provide acute and specialized care, and connect families to community resources. They also develop novel clinical protocols, coordinate response efforts, and train allied workers. By engaging with public health officials and government planners, nurses also improve systems before the next disaster strikes.

Yet the devastation of Hurricane Sandy and the confusion after the first U.S. case of Ebola show that nurses, their employers, and policymakers still have much to do to ensure that the nation is adequately prepared to respond to disasters. Past crises and current challenges, such as the arrival of Zika, show the urgency of giving nurses the training, resources, and authority to fully respond.

Through the lenses of four events—the arrival of Ebola in the United States, the Joplin Tornado, Hurricane Sandy, and the Boston Marathon bombing—this brief will showcase nurse-led innovations, policies that support the delivery of care, and practices that offer important lessons for future crises. This brief also will discuss systems and protocols that, if implemented, would make it easier during the next disaster for all nurses—not just those skilled in emergency response—to step forward.

**Figure 1. Frequency of Disasters and Terrorism Worldwide: 1970–2014**



Epidemics are among the natural disasters captured in this graph, along with earthquakes, floods, storms, and droughts. Infrastructure disasters include transport and industrial accidents.

**Source:** Guha-Sapir D, Below R, Hoyois P. EM-DAT: The CRED/OFDA International Disaster Database. Brussels: Université Catholique de Louvain. [www.emdat.be](http://www.emdat.be).

This graph includes events such as the Boston Marathon bombing (see p. 7). It excludes unsuccessful bombings and explosions, acts of war, and incidents not clearly tied to terrorism. The total number of terrorist events in this period is much larger, and it rises along a similar curve.

**Source:** National Consortium for the Study of Terrorism and Responses to Terrorism (START). 2015. Global Terrorism Database [Data file].

Nurses Improve Survival and Health in Disasters

The past half-century has brought a dramatic increase in the occurrence of emerging infectious diseases and in the frequency and intensity of natural and other disasters (see Figure 1, p. 1)—and experts expect this trend to continue, despite periodic fluctuations. On the front lines of response are police, firefighters, emergency management services workers, and, invariably, nurses. Whether as volunteers or as employees of public health departments, acute-care hospitals, or community-based facilities, nurses are called to serve when disaster strikes.

Disasters do not occur in just one day; they persist over time and have a life cycle consisting of four overlapping phases:

- Mitigation: understanding hazards and setting in place measures to reduce disasters’ effects
- Preparation: planning how to respond
- Response: intervening immediately
- Recovery: restoring the environment and community and analyzing lessons for the next disaster

Nurses play important roles throughout this cycle (see Table 1, right). Nurses bring clinical expertise, leadership, flexibility, and innovation to disaster management. They not only offer frontline care; their knowledge of health systems, social environments, patient safety, and staffing makes them ideal leaders in times of crisis. Even years after a disaster, nurses counsel survivors and continue to care for patients and communities.

“Nurses look at systems while being rooted in communities. We look at the individual patient and the community around him or her,” says Sheila Davis, DNP, ANP-BC, FAAN, chief nursing officer at Partners In Health, a non-profit that sent health workers to Africa to treat Ebola. “We’re also good at making things happen. We are skilled team members, and disaster responses are 100 percent team-based.”

Table 1. Nurse Roles in the Disaster Management Cycle

Cycle Steps	Public Health Nurses	Nurses in Hospital and Ambulatory Care Settings
Mitigation	<ul style="list-style-type: none"><li>• Strengthen community resilience</li><li>• Conduct surveillance</li><li>• Educate the public about preparedness and prevention</li><li>• Reach out to vulnerable populations</li></ul>	<ul style="list-style-type: none"><li>• Strengthen facility resilience</li></ul>
Preparedness	<ul style="list-style-type: none"><li>• Develop community-wide disaster plans</li><li>• Lead county, regional, state, and federal planning initiatives and drills</li></ul>	<ul style="list-style-type: none"><li>• Conduct hazard vulnerability assessments</li><li>• Develop emergency plans</li><li>• Educate staff</li><li>• Conduct drills</li></ul>
Response	<ul style="list-style-type: none"><li>• Assess the impact of disasters on essential public services such as the provision of food and potable water, sanitation, and electricity</li><li>• Perform mass decontamination or vaccination</li><li>• Administer medicines</li></ul>	<ul style="list-style-type: none"><li>• Evacuate, triage, and treat patients</li><li>• Staff incident command centers and shelters</li><li>• Manage staff and volunteers</li><li>• Communicate with the public</li></ul>
Recovery	<ul style="list-style-type: none"><li>• Deliver urgent care and case management services</li></ul>	<ul style="list-style-type: none"><li>• Screen survivors for behavioral health and psychosocial needs in the context of a disrupted social and physical environment</li><li>• Refer patients to mental health services, as appropriate</li><li>• Help survivors reintegrate and understand what has happened in their lives and connect them with resources to promote recovery</li><li>• Conduct formal evaluations of drills and real-life responses</li><li>• Recommend changes to emergency response plans</li></ul>

For More Information: <https://www.fas.org/sgp/crs/homesec/R42845.pdf>

The Value of Nursing, Then and Now



Photo: Library of Congress, LC-DIG-hec-14088



Photo: © Caroline Yang

Her mouth and nose covered, a nurse cares for victims of the 1918–1919 Spanish flu pandemic at Walter Reed Hospital (far left). At the University of Minnesota, nurses clad in personal protective equipment (PPE) take part in an Ebola drill (near left).

Although only a handful of Ebola cases have been treated in the United States, nurses and health care organizations are taking strong precautions. The Spanish flu killed between 20 and 40 million people, many times the 11,300 people across the globe who died from Ebola in 2014–2015.

## Lessons from the Ebola Outbreak

The 2014–15 Ebola outbreak proved to be a cautionary tale for our nation's response to new infectious diseases. Nurses were squarely in the public eye: examined, criticized, and, at times, praised as singular heroes amidst failing institutions. The nation learned that some hospitals and regions are better prepared than others to address infectious disease epidemics; that nurses are on the front lines of care; and that, without adequate training and protection, nurses put their own health and safety in jeopardy to care for the public.

### Teamwork and Preparation Save Lives

When the head nurse of the **Nebraska Biocontainment Unit (NBU)** donned protective equipment to meet her first patient with Ebola, she had practiced the ritual for nine years. She and fellow nurses even picked the equipment and designed the protocol.

After the NBU agreed to accept the first patient, staff repeated drills and refined protocols so that patients would receive optimal care while staff stayed safe.

But preparation was just one factor that helped **Nebraska Medicine** and **Emory University Hospital** safely and effectively treat patients with Ebola. NBU's clinical care was shaped by a deliberate culture of collaboration. Team members shared information at shift-change huddles. Nurses, doctors, and respiratory therapists spoke up if they saw something troubling and avoided traditional hierarchies that hamper open communication.

It's no coincidence that the NBU was designed and staffed during Nebraska

Medicine's journey to **Magnet®** designation. To earn Magnet status, hospitals must demonstrate that staff work as a team, and that the institution fosters a culture that lets nurses flourish professionally; grants professional autonomy and decision-making authority at the bedside; and gives nurses a voice in their work environment.

"It's about the involvement and engagement of staff at the front line," says Shelly Schwedhelm, MSN, RN, NEA-BC, executive director, emergency preparedness and infection prevention at Nebraska Medicine. "Including them in decisions about policies and protocols as well as in critical thinking to solve problems and confront unique situations—this was a daily requirement during care of patients with Ebola."

At Emory University Hospital, staff on the isolation unit team that cared for Ebola patients called themselves a "family," underscoring the collaborative nature of their work. All team members, regardless of role

or profession, were empowered to share accountability for following safe practices. Nurses and physicians implemented an active buddy system for donning and doffing protective gear.

"The first thing hospitals have to do is work on the culture," says Susan Grant, MS, RN, FAAN, then–chief nursing executive at Emory Healthcare (the comprehensive network that includes the hospital). "Every member of the team has an equal role. It's about partnership and interprofessional collaboration. In order to be patient- and family-centered, you have to be team-centered."

#### For More Information

Robert Wood Johnson Foundation. *Lessons from the Field: Promising Interprofessional Collaboration Practices*. 2015.

Implementing the IOM *Future of Nursing Report—Part II: The Potential of Interprofessional Collaborative Care to Improve Safety and Quality*. *Charting Nursing's Future*. November 2011.

### Behind the Headlines

At **Texas Health Presbyterian Hospital** in Dallas, poor communication among a nurse, a physician, and a patient led to the discharge of Thomas Duncan, the first patient diagnosed with Ebola on U.S. soil.

When Duncan was later readmitted and presumed infected with Ebola, nurses followed the CDC's guidance on protective gear, but the agency's directives shifted on numerous occasions. This undermined nurses' confidence, according to an independent panel report released by the facility. Ultimately, two Texas Health nurses were infected with the virus; they recovered, but Duncan died.

The hospital is a two-time Magnet-designated institution, underscoring the challenges faced by any non-biocontainment hospital in treating an emerging infectious disease. Unlike nationally designated treatment

centers, Texas Health had no warning that an Ebola patient would walk through its doors.

"There are aspects of what happened at Dallas that could have happened anywhere," says Nebraska Medicine's Schwedhelm.

Not everyone agrees. Nina Pham, RN, who contracted Ebola while taking care of Duncan, is suing Texas Health Resources, saying it did not adequately train and protect nurses. Since the incident, the hospital announced that it has improved its workflow and medical record software to clearly highlight travel risk and emerging infectious diseases; put in place new procedures to more quickly identify at-risk patients; developed a triage procedure for at-risk patients that quickly isolates them; and increased its emphasis on communication between nurses and physicians.



"We can either let our actions be guided by misunderstandings, fear and self-interest, or we can lead by knowledge, science and compassion."

*We can fear, or we can care.*"

—Excerpt from *The Washington Post* editorial by then–Chief Nursing Executive **Susan Grant** reassuring the public when Emory University Hospital received its second Ebola patient in August 2014.

#### For More Information

Texas Health Resources. *The Expert Panel Report to Texas Health Resources Leadership on the 2014 Ebola Events*. 2015.



## Lessons from the Ebola Outbreak *continued*

### Nurses Feel Underprepared (And Many Are)

"Education and a commitment to continuous learning are the world's best defense," Nebraska Medicine's Schwedhelm has written.

There are numerous types of disasters, making training and preparation to address them challenging. A flood, mass shooting, bioterrorism attack, or new infectious disease requires distinct clinical knowledge and diverse stockpiles of equipment or medication. What's more, every phase of the disaster management cycle (see Table 1, p. 2) calls for different competencies.

Nursing degree programs at all levels devote an average of just four hours to disaster preparedness, a 2005 [study](#) found, so

### What Can Be Done?

Nurses need a variety of options to access high-quality, evidence-based disaster content in ways that are affordable and easy to use, says Tener Veenema, PhD, MPH, RN, associate professor, Johns Hopkins University School of Nursing. Because disaster science evolves rapidly, nurses and other responders also need to learn how to assess each situation and quickly retrieve evidence-based research to guide their interventions.

The U.S. Department of Health and Human Services has developed the [Healthcare](#)

### Preparing for the Unknown

For decades our nation has felt isolated from infectious diseases that prevail in other parts of the world, but the arrival of Zika on the heels of the Ebola crisis has brought home our vulnerability.

"We're used to having a vaccine or a cure," says Pamela A. Thompson, MS, RN, FAAN, chief executive officer of the American Organization of Nurse Executives (AONE). "Ebola forced us to ask: How do we create a system that allows us to manage the ambiguity of what we are preparing for, while keeping our patients, and the entire health care team, safe?"

As a first step, she recommends nurses and other health care personnel maintain their skill in standard (once called "universal") precautions—protocols for handling blood and bodily fluids as if they were infectious.

most learning occurs on the job. The [Joint Commission](#), which accredits hospitals, requires that employers provide staff with ongoing emergency preparedness training, but a 2009 survey of hospital emergency coordinators found significant gaps. While emergency room nurses were deemed essential in a crisis, just 70 percent were trained in the use of personal protective equipment (PPE), 63 percent in decontamination, and 55 percent in caring for victims of chemical, biological, nuclear, or explosive attacks. Fewer than half understood their hospital's incident command system, a central command structure during disasters.

When the Ebola outbreak first reached U.S. shores, [National Nurses United](#) called the

[Emergency Preparedness Information Gateway \(ASPR TRACIE\)](#) for this purpose. ASPR TRACIE provides free access to online libraries of evidence-based disaster response training and research, one-on-one consultations with technical assistance specialists, and a peer-to-peer discussion board for use before and during a disaster response.

"The profession itself needs to adopt an attitude of responsibility for acquiring a minimum level of knowledge to keep

Effective communication is also critical. To forestall public alarm, Thompson says messages to staff, patients, and the community must be clear and fact-based.

Organizational best practices may include:

- screening patients at all entry points, including primary care venues;
- communicating travel histories to all team members;
- establishing systems of community-wide coordination;
- forging ties with public health agencies to increase awareness of potential threats.

Even with these practices in place, Thompson concludes, "There's always going to be this unknown piece—something you didn't anticipate—and all the systems you designed to that point may not work. That's where providers' creativity and ingenuity come in."

media's attention to nurse concerns over inadequate PPE and training. The safety of workers who care for patients with highly contagious diseases is governed by [Occupational Safety and Health Administration \(OSHA\)](#) regulations. Although OSHA conducts periodic spot checks and investigates reported violations, it is not an enforcement agency. In practice, employers, nursing programs, professional organizations, and workers themselves must make sure that nurses are knowledgeable, adequately trained, and protected.

### Additional Resources for Disaster Nursing Training

- [Unbound Medicine's Disaster Nursing App](#)
- [Disaster Information Management Research Center](#)
- [FEMA Emergency Management Institute](#)
- [CDC Emergency Preparedness and Response](#)
- [National Ebola Training and Education Center](#)
- [AONE: Guiding Principles for the Role of the Nurse Leader in Crisis Management](#)

nurses, their patients, and their communities safe," says Veenema. "It is every nurse's responsibility to become educated in the health impacts of these events and nurses' role in responding to them."

### The Value of Nursing



Photo: Rebecca E. Rollins/Partners In Health

A nurse with [Partners In Health](#), a Boston-based global health organization, swaddles a child at an Ebola treatment center in Sierra Leone. Global epidemics can quickly arrive in the United States, and many U.S. nurses want to work abroad to combat such outbreaks. Yet nurses often face challenges securing release from employers for long-term deployments, risks to their own health, and social stigma when returning home.

## Preparedness Pays Off in Joplin, Missouri

On May 22, 2011, with just 24 minutes of warning, a deadly tornado moved through Joplin, Mo., a city with a daytime population of 200,000 people. The tornado's 200-mile-per-hour winds carved a 13-square-mile gash through the city. Nearly 1,500 people were injured and 161 killed. As a result, the **Freeman Health System**, the only hospital left intact, faced one of the largest medical surges (rapid expansion in its capacity) in U.S. history.

### A Staggering Medical Surge: The Freeman Health System

Minutes after the tornado sirens stopped, victims streamed into the Freeman Health System. They arrived by pickup truck, foot, car, and ambulance. Soon hundreds of patients stood or lay in the emergency department, hospital atrium, and two parking lots.

"It was this wall of people, naked, covered with dirt, and they were dying," recalls Bob Denton, RN, PA, the hospital's director of emergency and trauma services. "You just did what was in front of you."

#### 1,000 Patients

In the next 12 hours, Freeman received 1,000 patients, and staff performed 22 life-saving surgeries. They worked on backup power, with limited water and no Internet connection, serving as exemplars of ingenuity and leadership.

Bob's wife, Renee Denton, RN, BSN, then director of medical oncology and pediatric services, assembled a team of physicians and nurses to treat more than 200 seriously injured patients in a conference room. The caregivers worked in silence out of respect

for patients, who were in shock. Denton soon saw that her nurses were having to work outside their comfort zones. "My nurses were capable of doing anything I asked them to," she says, "but they were so new, they were very focused on following standard, everyday protocols. I needed them to have the clinical maturity to think beyond the box."

Then, Denton had to grapple with her own limits, especially her existing ideas about the standard of care. "Providing treatment in a controlled environment is very different from a disaster scenario," she recalls. "You must be able to think outside of the norm or you greatly diminish the number of people you can save." She adjusted to cleansing only the patients' wounds with sterile water and cleansers and to facilitating superficial wound closures with adequate—but perhaps not optimal—sutures. One silver lining: The tornado occurred just before Freeman's daily shift change so the hospital had double the normal staff.

#### In the Aftermath

As the days progressed, Freeman received more help—staff, blood, and equipment—

### Freeman Surge Reveals Policy Challenges and Solutions

"Nurses were coming from everywhere to help," recalls Renee Denton. "But we didn't know immediately who we could use. The confusion was a hindrance."

That confusion might have been avoided if all of Missouri's neighboring states had participated in the **Nurse Licensure Compact (NLC)**. Launched in 2000 by the National Council of State Boards of Nursing, the NLC lets nurses practice under their home state licenses in other NLC states, allowing nurses to cross state lines for disaster response.

Joplin sits at the intersection of four states. Missouri and neighbor Arkansas are among the 25 states that participate in the NLC. Nearby Kansas and Oklahoma do not.

Immediately following the tornado, Freeman activated another voluntary pact, the MHA's Mutual Aid Agreement. The agreement, signed by almost all of the state's hospitals, provides a legal and financial structure for hospitals to share resources, including staff, during a disaster.

Joplin and its neighboring counties had also collaborated for years on disaster preparedness grants, training, and exercises while the state and county had invested in robust community preparedness programs. Just days before the tornado, southwestern Missouri participated in a four-day-long, federally guided disaster simulation training. Without these regional partnerships and drills, a federal after-action report noted, the response would not have been as effective.



*"Nurses will do what you think is humanly impossible, with a level of commitment you could never have imagined. They will rise*

*to the challenge and take care of what needs to happen."*

**—Paula Baker, MS, President and CEO, Freeman Health System**

through the **Missouri Hospital Association (MHA)** Mutual Aid Agreement. Hundreds of volunteers also self-deployed to Joplin, bringing much-needed assistance—and a few challenges related to nurse licensure (see article, below).

By the next day's light, the emergency room was empty—apparently back to normal—but many in the community, including nurses, suffered from post-traumatic stress disorder. Says Freeman Health System President and CEO Paula Baker, MS: "It's more than your mind can comprehend." Freeman had mental health counselors available at all times, and many nurses used the counseling services to help process their own grief and shock.



Photo: Courtesy of Jasper County, Mo., Health Department

#### For More Information

The National Council of State Boards of Nursing's Nurse Licensure Compact. [www.nursecompact.com](http://www.nursecompact.com)

Missouri Hospital Association. *Preparedness and Partnerships, Lessons Learned from the Missouri Disasters of 2011*. 2012.

## Hurricane Sandy: Heroism and Ingenuity Fill Troubling Gaps

When Hurricane Sandy, the largest storm ever recorded in the Atlantic Ocean, reached the New York–New Jersey shore on the evening of October 29, 2012, it combined with high tide and a winter storm to bring wind, water, and destruction. Ninety-four people died, and 2 million area residents lost power. A 2014 [analysis](#) by the U.S. Department of Health and Human Services found that most area hospitals faced “substantial challenges” in responding to the storm. Among them: as power failed, hospitals turned to backup generators; as water rose, generators flooded, forcing emergency evacuations. In the storm’s aftermath, tens of thousands of people were trapped in high-rise buildings, housing complexes, and far-flung neighborhoods, often without food, water, or medication. Both in hospitals and in the community, nurse leadership and creativity filled the gaps.

### Problem-Solving to Save Lives

When the emergency generators at [New York University’s Langone Medical Center](#) failed, Menchu De Luna Sanchez, RN, BSN, applied the pragmatic problem-solving skills she had been sharpening during 35 years as a nurse.

On the hospital’s ninth floor, four of 21 babies in the Neonatal Intensive Care Unit (NICU) were on ventilators with just a few hours of backup power available. Ambulances were waiting below, but the challenge was how to move such medically fragile patients.

Sanchez proposed carrying the babies koala-style, close to nurses’ chests, using a heating pad. With her idea accepted,

10 nurses, physicians, and respiratory therapists surrounded Sanchez as she began transporting the first of her patients.

“I am holding the baby close to me, the respiratory therapist is holding the oxygen tank, the doctor is compressing the oxygen, three more people are guiding us with cell phones in the dark, and our attending is calling, ‘step one, step, step, step,’” Sanchez recalls. “I thought my arm would fall off, from the stress and pressure.”

It took one hour to carry a baby down nine flights of stairs, but 21 NICU patients were transported that night, and all survived.



Photo: John Abbott Photography

For her lifesaving improvisation, Sanchez was recognized by the White House and invited to join First Lady Michelle Obama and Dr. Jill Biden at the 2013 presidential State of the Union address.

### Walking the Extra Mile to Those Most in Need

In the storm’s aftermath, leaders of the [Visiting Nurse Service of New York \(VNSNY\)](#), a not-for-profit community-based home health agency, made a bold move. The Rockaways, a strip of beachfront homes and public housing, had been submerged, but seemed to have been overlooked by emergency responders.

A VNSNY vice president, Jill Goldstein, MA, MS, RN, was dispatched to set up a temporary command center in a Rockaway church school. Goldstein turned classrooms into staff rooms, a clinical intake center, and a pharmacy. Then she divided neighborhoods into blocks, which volunteers systematically canvassed.

Physicians and nurse practitioners assessed residents, diagnosed conditions, and created treatment plans. “We instinctively put teams together and put feet on the ground to triage the most severe needs and deal with them,” says Goldstein.

When word spread of VNSNY’s work, the New York Department of Health assigned the National Guard to help. The Federal Emergency Management Agency, the Red Cross, and Verizon joined in. These partnerships allowed relief agencies to address basic needs, freeing VNSNY nurses to attend to clinical problems.

At the agency’s request, Walgreens sent five pharmacists and set up a dispensary. Care was provided at no charge, with bills worked out later and often forgiven. “Our immediate care kept a lot of people out of emergency rooms,” Goldstein says.

VNSNY set up similar command centers to serve people trapped in Brooklyn’s Red Hook public housing, on Staten Island, and in lower Manhattan faculty housing high-rises. All told, canvassing teams knocked on 10,000 doors to assess residents’ needs.

### The Value of Shelter Nursing

Disaster evacuees often leave their homes empty-handed, but their ongoing health needs—for items such as asthma inhalers, oxygen, and hearing aids—persist.

In 1900, Congress granted the [American Red Cross](#) a charter to provide national and international relief for disasters large and small, including setting up and staffing shelters.



Photo: Daniel Cima/American Red Cross

Today, volunteer nurses at Red Cross shelters check on people with chronic conditions and care for minor cuts and sprains. They connect survivors to resources such as hearing aids and glasses, walkers and canes, using Red Cross funds to cover small financial gaps. They walk cot to cot, watching for both physical and behavioral health symptoms that might warrant care and further resources and referrals. Nurses also make sure shelters are accessible to patients with functional challenges, and they share morbidity and mortality data with the CDC for health surveillance. In an often unacknowledged role, nurses provide a shoulder to lean on for families grieving and in shock. “It’s hard for survivors to grasp, what is the next step to take?” said Jeanne Spears, RN, Southeast and Caribbean Division Disaster Health Services advisor of the American Red Cross. “Our job, from a health and mental health standpoint, is to help clients take that next step.”



## Creating the Conditions for Effective Response

Readiness for disaster response starts years before a hurricane reaches land, a new infectious disease emerges, or a shooter opens fire. Nurses and others need more targeted training and access to more just-in-time information, while the organizations that employ them must hold frequent and realistic drills, join community coalitions, shore up their infrastructures, and remain vigilant for unexpected threats.

Scholars have used the term “resilient” to describe health systems that are ready to respond effectively to crises. Just as resilient individuals bounce back from negative events by adapting to stressful, changing demands, resilient health systems function well in the face of unforeseen challenges because they share several characteristics:

- Awareness of potential health threats and of their own internal strengths and limitations
- The ability to draw on redundant capacity when needed to contain threats while continuing to deliver core services
- Integration with public and private community partners and preexisting cooperative agreements
- The capacity to address a diverse range of health needs
- Strong and flexible leadership and organizational structures that can adapt in times of crisis

“[B]uilding a resilient health system should also produce the ‘resilience dividend,’” a team of global health scholars wrote in *The Lancet*, “apparent not only through effective functioning under duress and faster recovery, but also through better routine health-care provision, social cohesion, and productivity during periods without exigent needs.”

Similarly, the [Trust for America’s Health \(TFAH\)](#) has recommended that community resilience “be a top priority for federal, state and local governments.” TFAH advocates achieving this resilience by supporting prevention and public health programs, building partnerships between public health and community organizations, and requiring hospitals to include community-wide disaster planning in their community benefit efforts.

### For More Information

Kruk ME, Myers M, Varpilah ST, Dahn BT. [What Is a Resilient Health System: Lessons from Ebola](#). *The Lancet*. 2015; 385:1910–12.

Trust for America’s Health. [Outbreaks: Protecting Americans from Infectious Diseases](#). 2015.

## Boston: An Exemplar of Resilience

At 2:50 p.m. on April 15, 2013, nearly three hours after the first runner completed the Boston Marathon, two bomb blasts ripped through the finish-line crowd. Within minutes, ambulances were transporting patients to seven of the area’s trauma centers, wisely dispersing them so as to not overload a single hospital.

At one location, [Massachusetts General Hospital \(MGH\)](#), senior leaders learned of the terrorist event at 3:00 p.m. Because the emergency department had been notified in advance by radio, interprofessional teams were already assembling in each trauma bay. The first of five victims arrived at MGH at 3:04 p.m. and 20 minutes later entered the operating room for trauma surgery. To handle this emergency, the hospital initiated a medical surge (a rapid expansion in its capacity), calling additional operating room and other staff nurses, surgical technicians, surgeons, and others to help.

The bombs killed three people and injured more than 260. But every bombing victim who made it to a hospital survived, demonstrating

how an extraordinarily well-integrated hospital, public health, and EMS community supports disaster response. A Harvard Kennedy School report later credited the “multi-dimensional preparedness of the region” for Boston’s success.

“You can’t build a disaster response in the moment,” says Maryfran Hughes, RN, MSN, nursing director, emergency services at MGH and participant in the [Boston Healthcare Preparedness Coalition](#). “In Boston, since 1975, all hospitals and public health agencies have been meeting around the table monthly to talk about expectations, starting from scratch. Now everyone has a very effective and streamlined system. It’s nice to be able to pick up the phone and call, and the expectations are understood.”

A project initiated by the Conference of Boston Teaching Hospitals, and recently taken over by the Boston Public Health Commission (BPHC), the coalition has convened emergency managers for more than three decades (see photo, this page). The coalition routinely shares information

## Experts Develop Vision for Disaster Nursing’s Future

In 2014, 70 nurse leaders, emergency managers, and public health experts convened to create a vision for a future in which all nurses are optimally prepared to respond to disasters. The [Veterans Emergency Management Evaluation Center](#), a research and training center within the Department of Veterans Affairs, supported the project, which outlined challenges and barriers to achieving the vision, as well as factors facilitating it, and issued a call to action to the government, nurses, and the public. The panel’s final report was published in the March 2016 edition of the *Journal of Nursing Scholarship*.

### For More Information

Veenema TG, Griffin A, Gable AR, et al. [Nurses as Leaders in Disaster Preparedness and Response—A Call to Action](#). *Journal of Nursing Scholarship*. 2016; 48(2):187–200.



Photo: Becca A. Lewis Photography

about public health threats, a characteristic of resilient health systems.

In 2009, the BPHC created the [Stephen M. Lawlor Medical Intelligence Center \(MIC\)](#) in response to requests by health care emergency managers for more accurate, timely information. It is one of the only centers of its kind in the country. After the bombing, the MIC gave emergency managers accurate, up-to-the-minute information about the situation; helped member hospitals get additional amputation kits; and coordinated counseling and other assistance to families.

### For More Information

Harvard Kennedy School Program on Crisis Leadership. [Why Was Boston Strong? Lessons from the Boston Marathon Bombing](#). 2014.

## Preparedness Must Become the Norm

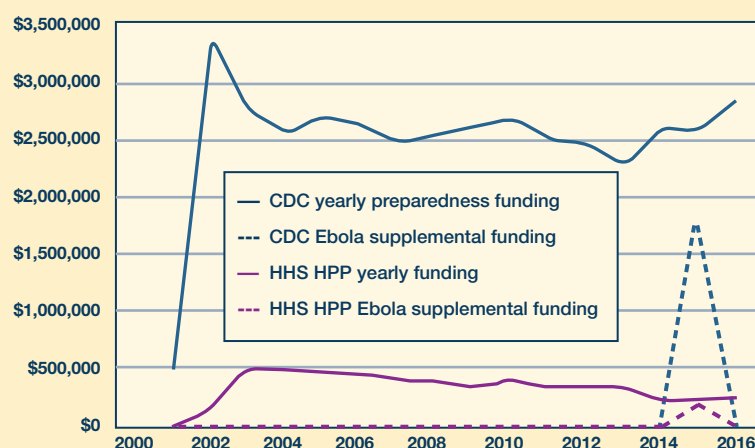
"The biggest obstacle to preparedness is complacency," says MaryBeth Kingston, MSN, RN, NEA-BC, executive vice president of Wisconsin's Aurora Health Care.

In the wake of the attacks of 9/11, the U.S. government invested heavily in health related preparedness, but, with the exception of a one-time bump-up for Ebola, those investments have flattened or declined (see Figure 2). "[T]here is a major ramp up when a new eminent threat emerges," wrote the Trust for America's Health in 2015, "but then [U.S investments in infectious disease prevention] fall back when the problem seems contained."

Meanwhile, the public health workforce—primarily nurses—has shrunk. About 52,000 public health jobs have been lost nationwide since 2008 due to state and local budget cuts stemming from the recession.

Research, prevention, surveillance, drills, infection control, and workforce readiness

**Figure 2. Reductions in Health-Related Preparedness Funding**



In 2015, one-time investments related to Ebola almost equalled federal investments to combat all other health threats.

Sources: Centers for Disease Control and Prevention; Department of Health and Human Services

require continuous investment. The federally funded **Hospital Preparedness Program (HPP)**, administered by the Assistant Secretary for Preparedness and Response, provides grants to help states and health

care systems develop surge capacity and prepare for infectious disease outbreaks. The CDC's **Public Health Emergency Preparedness program** helps state public health departments respond to pandemics and natural disasters. Hospitals and local health departments, under ongoing pressure to reduce costs, depend on these federal and state monies more than ever.

### Next Steps: What Nurses Can Do

Nurses can take a variety of steps to prepare themselves, their institutions, and their communities for the next disaster. Nurses can:

- Support efforts to develop a culture that values teamwork, safety, and respectful and honest communication among diverse professionals.
- Know hazards specific to their geographic area and how their agency, organization, or unit will function during a disaster.
- Understand the emergency chain of command; be able to locate the emergency response plan; actively participate in disaster drills; and demonstrate competence in their roles during a disaster and in the use of equipment.
- Learn and practice crisis communication procedures; regularly engage with external stakeholders in planning for disasters; and conduct frequent, realistic drills.
- Pay scrupulous attention to following standard precautions to reduce infection risk.
- And on a personal note, prepare a disaster survival kit and make a disaster preparedness plan that addresses how family members and pets will be cared for during a disaster.

### For More Information

Centers for Medicare and Medicaid Services. *Emergency Preparedness Checklist*. 2013.

### Federal Deadline Looms to Adopt Crisis Standards of Care

Crisis standards of care guide the allocation of time, staff, equipment, and other resources in a disaster. Once a state official or a panel designates a crisis, the focus shifts from treating individuals to spreading thin resources for the population's best health outcomes. States have until mid-2017 to complete plans or risk losing related federal monies.

### For More Information

Institute of Medicine. *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*. 2012.

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